

## ABSTRACT

1           A flexible mesoscopic heat exchanger is provided by the invention.  
2   The heat exchanger of the invention includes uniform microchannels for fluid  
3   flow. Separate header and channel layers include microchannels for fluid flow  
4   and heat exchange. A layered structure with channels aligned in multiple  
5   orientations in the layers permits the use of a flexible material without channel  
6   sagging and provides uniform flows. In a preferred embodiment, layers are heat  
7   sealed, e.g., by a preferred lamination fabrication process.